Network-Based Document Management Systems

[0001]   This application claims the benefit of U.S. Provisional Application No.

60/446,996, filed February 13, 2003, which is herein incorporated by

reference in its entirety.

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BACKGROUND

FIELD OF THE INVENTION

[0003]   The present invention relates to a network-based document management

system. More particularly, the invention relates to the control and to the

configuration of network components that co-operate to generate, process

and provide data originating from various sources to a number of users.

BACKGROUND OF THE INVENTION

[0004]   Modern communications networks like the public Internet, non-public

intranets or combinations thereof have greatly facilitated the presentation and

the exchange of information to/between large user groups. The facilitated

information exchange, however, necessitates an improved information

management to cope with issues like lack of accessibility of information, sub-

optimal speed of information retrieval, unnecessary duplication of processes

and information, etc. It is obvious that due to the steadily increasing amount

of information to be managed, the task of information management becomes

increasingly laborious.

[0005]   To facilitate the task of information management, numerous standard

platforms have been developed. As an example for such a standard platform,

Lotus Domino R5 distributed by Lotus/IBM Inc. can be mentioned. Despite

the availability of such standard platforms, the existence of individual needs

still requires complex considerations for example regarding network

technologies and topologies, regarding the programming and interconnecting

of network components and regarding the distribution of specific processing

tasks among the individual network components.

[0006]   Information to be processed by individual network components can relate to

various aspects and usually the above considerations of a network

technologist are independent from the specific nature of the processed

information. However, there exist situations in which the nature of the

processed information does influence technical aspects of the communications

network and its components. In such a case, it becomes essential that the

technical environment including network topology, user interfaces, etc. is

adapted to the specific type of information to ensure a proper, efficient and

secure operation of the communications network. This holds true for, among

others, information relating to tasks, processes or events, but also to data

reflecting the structure, the incorporation and the executives of an

organization and the definitions and procedures according to which this

organization implements and carries out its business.

[0007]   There is a need for a technical environment that allows for an improved

information management. More specifically, there is a need for appropriately

configured network components and a method of controlling such network

components that allow for a fast, efficient, and secure processing of

information the above-mentioned kinds.

[0008]   This holds especially true when in a large – and often times geographically

and structurally distributed - organization that exists for a long period of time,

several content providing network systems serving different and/or

overlapping purposes and user groups of the organization, coexist within said

organization.

PROBLEM UNDERLYING THE INVENTION

[0009]   A major technical problem resides in the fact that there is a constant change

within the organization, departments, working groups, project groups are

formed and disbanded, new information technology (IT) hardware and

software has to be provided to such units in the organization and maintained

in an operative state during the existence of said units. This is a very

manpower-intensive and laborious task as many of the various content

providing network systems in organizations heretofore have different user

interfaces, require special client software on the user side and are to be

updated when new software releases are available. Further, special client

software required on the users' workstations demands increased hardware

capabilities (storage capacity, working memory, processing capacity etc.) on

the users' workstations. Also, the users have to be trained in use the of the

software packages having disparate user interfaces due to their different

origin and purposes.

[0010]   Another aspect of the technical problem underlying the invention is the

storage and the maintenance and the dissemination or presentation of the

electronic dossiers available in an organization. Usually, the documents can

be statically or dynamically created inside or external to the organization,

range in their complexity from simple alphanumeric and/or graphic documents

to complex applications requiring data input by a user and/or data import

from other documents or data sources (internet, intranet) during the

utilization of the document by a user. Creating, maintaining and updating this

vast variety of different kinds of documents, web pages and data comp-

lications is very cumbersome and requires extensive IT skills.

BRIEF SUMMARY OF THE INVENTION

[0011]   According to an aspect of the invention, this need is satisfied by a network

component adapted to be connected to a number of members of a group of

network components in a computer network for a unified network-based

document management comprising a hosting unit for hosting for access by

the group of network components at least a program code portion for

generating one or more graphical user interfaces (GUIs), one of said graphical

user interfaces having at least a control element for initiating a transformation

of an electronic dossier originating from one of a number of document

platforms, said electronic dossier being provided in a first format and being

made available to a number of users of a web site; a program code portion for

obtaining from a predetermined set of templates one template to be

correlated to the data of said electronic dossier, for obtaining from a

predetermined set of styles at least a subset of style characteristics to be

correlated to the data of said electronic dossier, for migrating said electronic

dossier to a document platform having a unified format, and for electronically

exporting said electronic dossier together with said suited template and said

style subset to a unified database, wherein said unified database is adapted to

store said electronic dossier together with said obtained template and said

obtained style subset and is accessible by a user by means of one of said

network components through a browser interface by means of a browser

installed on at least said one network component in order to process, view

and/or store said electronic dossiers.

PROPERTIES, ADVANTAGES AND ENHANCEMENTS OF THE INVENTION

[0012]   The invention allows for a completely web-based creation, authoring,

maintenance and managing environment for a wide variety of documents

avoiding special client software that is very costly and requires a long lead

time for its installation as well as differing hardware configurations on the

user workstations' side. Rather, the utilization of identical client workstations

having reduced processing storage and working memory capabilities

significantly facilitates the effective setup, change, and dissolution of working

units within the organization.

[0013]   The contents of the unified information platform are bundled into sites. A site

of the unified information platform corresponds to the site concept as

commonly found on the Internet. A site of the unified information platform is

a collection of hierarchically organized pages describing for instance a

product, a service, a process, or an organizational unit.

[0014]   This is in contrast to currently available portals appearing as one big site with

many entry points. Borders between different kinds of information are

unclear, which is mostly due to the common navigation on every page and the

large number of links in the local navigation and in the content that lead away

from the actual site.

[0015]   The concept of the present invention approaches this problem in that it

isolates different types of information from each other. A site of the unified

information platform is a capsule of a specific kind of information. The local

navigation on a site exclusively contains links internal to this site. Links that

point outside a site can only be placed in the content area or in a special area

of the local navigation. Such links, which can point either to other sites of the

unified information platform, the rest of an intranet or the Internet, are

marked with an icon, thus helping the user to get a better sense of

orientation.

[0016]   The invention also allows for a clear separation of the page contents from the
design rules and the template rules and any proprietary elements of the
unified document platform. This minimizes the memory requirements and the
software overhead on the server's as well as on the user workstations' side.
Further, this invention reduces the efforts for training of the users due to the
uniform man-machine-interface for all the documents previously available only
through different user interfaces, it enhances the ease-of-use and contributes
to a coherent presentation of the contents.

[0017]   Further, the invention allows for very flexible navigation modes (e.g., by
action, item or by topic) due to the consistent storage, retrieval and
processing-further of electronic dossiers in the unified database.

[0018]   The number of document platforms from which said electronic dossiers may
originate include: HTML pages, database contents plus templates, static web
pages, documents comprising alphanumeric and/or image data, links to other
web sites, XML documents, or the like.

[0019]   The computer network comprises a number of groups maintaining different
sets of document platforms. This allows for different organizational or
business units of an organization or corporation to host their entirety of
information in a unified IT environment. This also contributes to the
reduction of costs of hardware and/or software infrastructure.

[0020]   In order to have clear interfaces, competences and rules related to the unified

database, several functions having predetermined authorities, tasks and

capabilities are provided: a platform manager function, a web manager

function, a site manager function, a publisher function, site owner function,

and an author function.

[0021]   Most of these authorizations, tasks, and capabilities are implemented by

access rights (read, write, modify, create etc.) to documents, web pages and

web sites.

[0022]   Another important aspect of the invention resides in the circumstance that

each template of said predetermined set of templates is comprised of at least

three distinct areas accessible through said GUI: a top area comprising at

least one pointer for a global navigation path, and/or at least one pointer for a

global topic; and/or at least one pointer for a global function; a local

navigation area comprising at least one pointer for a local navigation path

having a predetermined maximum hierarchical navigation depth, and/or at

least one pointer for a local page of the web site, and/or at least one pointer

for an page of an external web page, and/or at least one micro-identity area;

and a content area having a predetermined layout according to said

predetermined set of styles. This allows for a consistent appearance of the

data to the user "look and feel" facilitating the navigation and retrieval of the contents by the users.

[0023]   A publishing function of a web site has complete control over the structure of the local navigation of a site. It can add and delete navigation entries, create links between navigation entries and pages (whether inside the site or external to it), edit navigation entries, and set up navigation titles and catalogues.

[0024]   The design of the navigation is standardized. The colors, fonts, and spacing are all controlled by the system. Certain other items are also fixed. Every local navigation, for instance, has an entry called TOP. This is the root navigation of the site. TOP is always linked to the welcome page of a site. When a user accesses a web site, he or she sees the Top navigation and its page first. Via the publishing function, the page that is linked to the Top navigation may freely be changed, but there must always be a page linked to TOP. The text of the Top entry cannot be deleted or changed (it is always called Top, in all languages).

[0025]   The navigations are hierarchical. There is a vertical and a horizontal hierarchy. Vertically, the Top navigation is always the first entry, and there is always space between the Top navigation and the rest of the navigation entries. Navigation entries can be included under Top. Horizontally,

navigations may be up to four levels deep. For example, a small triangle icon

pointing left next to a navigation entry indicates that there are sublevels

hidden underneath it. Clicking on the entry 'opens' the navigation to display

the first sublevel. As another example, triangle pointing down and a different

color indicate an open navigation. An empty square indicates a navigation

without subentries.

[0026]   Several different navigation types are made available:

NAVIGATION: A normal navigation is a navigation linked to a page in the

unified database platform (typically in the same site, may however also

be a page in another site).

LINK: A navigation link is a navigation that points to a page outside of

unified database platform (typically in the internet or an application

accessible on the intranet).

TITLE: A navigation is a navigation element that is not linked to anything. It

appears bold in the navigation and is used to divide a long navigation

into sections.

CATALOGUE: A catalogue navigation is a special navigation entry that brings

up a pre-defined, searchable list of sites.

[0027]   In a preferred embodiment, different links are made available. Some are

indicated in the table below:

Link Name	Link Type	Description
Doc-Web-Document Link	Document	Links to documents in DocWeb.
Non-Doc-Web Doc. Link	Document	Links to documents on a web server.
Internal Site Link	Page	Links to the Welcome Page of a site (independent of which page is currently the Welcome Page).
Internal Link	Page	Links to a page in the unified database.
Internet Link	Page	Links to a page in the internet.
Org. Unit Link	OU	Links to an OU's entry in Who-is-Who and its Welcome Page (if available).
Person Link	Person	Links to a person's entry in Who-is-Who and a related web page (if available).
Email Link	Person	Allows the user to send an email to a Specific person. The Email may be preformatted.
SMS Link	Person	Allows the user to send an SMS to a specific person (over a message service).
Company Link	Company	Links to a company's web page.

[0028]   Links can be displayed in the conventional manner of the internet (e.g., blue

underlined text, which turns purple if the link has been used once). According

to the present invention, links differ from internet (HTML-based) links in

several aspects. Links can contain optional information besides the link text.

This information is often supplied by the system, in some cases is added by

the publishing function. For example, the size of the document, the language and the icon of the software program used to generate, modify, or display the document are supplemental information. The publishing function can choose to display such information or not. The link text can also be changed by the publishing function.

[0029] Some links can point simultaneously to multiple targets. A company link, for example, can point simultaneously to a company's home page and to its entry in a database, in an application available through the intranet, or the like.

[0030] Linking to a wide variety of documents (PDF, WinWord, Excel, PowerPoint, Visio, etc.) can be provided in the unified database according to the present invention. When the user follows a document link, the document will open. The document must be either available via an intranet or reside on a web-server which is available to the unified database (i.e., it must have a URL).

[0031] The design rules utilized to create and format include the text font, the font size and colors on pages on blocks and properties like titles, subtitles, text etc., adjusts spacing between elements like text lines, between text and graphic elements, define colors for backgrounds, and exclude the utilization of animations or the like.

[0032]   Each of said electronic dossiers in said unified database is organized as a part

of a collection of hierarchically organized pages forming a site describing a

product, a service, a process or an organizational unit.

[0033]   Each of said migrated electronic dossier uses XML as the unified format, and

wherein the contents is stored in the form of information blocks which are

independent from the design or the layout of the contents. This allows for a

wide variety of presentation media for the contents (intranet, internet, print,

sound, etc.).

[0034]   A further program code portion can be provided for checking and verifying the

contents of the electronic dossier with regard to its accuracy, timeliness, and

relevance to the site prior to its migration to the document platform having

the unified format. This functionality significantly reduces the amount of data

to be migrated. Further, it has a positive effect on the acceptance and quality

and the value of the unified database for its users.

[0035]   A preferred embodiment comprises a program code portion automatically

effecting a language management function that substitutes a web page not

existing in a certain requested language by an available language version of

this web page according to a predefined priority scheme. The language

management function interacts with the database on the site level. The site

administrator function declares which languages are supported on a site of

the uniform document database platform. The language navigation on every

page indicates the currently chosen language and the available languages.

The site administrator function ascertains that all pages are available in all

declared languages. If a given page is not available in a declared language, it

will be displayed in another language in a certain predetermined order, e.g.,

German - English - French - Italian. This order can be defined differently for

different sites. The result is a page with the navigational elements in the

chosen language and the content in a substitute language. When navigating

within a site, a user does not drop out of the chosen language context. This

also means that the complete wording (navigational elements, help texts etc.)

on the site is provided in these four languages. Individual pages can also be

added in other languages, e.g., Spanish and Portuguese.

[0036]   The wording is implemented as a dictionary, making it possible to rapidly add

new languages whenever this is required.

[0037]   Further, a program code portion can be provided that automatically effects a

receiving of feedback information about a web page or a web site from a

user, and a routing of said feedback information to a feedback database

accessible by the responsible of such web page or a web site, and an entering

of said feedback information into said feedback database.

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[0038] This can be implemented by a link to said feedback database provided, for example, in the footer of each page presented to a user. Users may click on this link and then are able to write and send comments on the page. This feedback function allows users to send comments about the pages they are looking at to the publishing function of the respective pages. This can be very useful in maintaining the quality of the web pages. The comments or messages go directly into a message center of the web site to which the page belongs. Depending on the property settings, an email notification may be sent to all the site managing functions and/or publishing function on the site to alert them that a new comment has arrived. This email notification contains a link to the comment and a link to the page that generated the comment. The feedback information can be accessed (read) by the publisher and/or the site manager function in order to be processed (a bug fixed, a request being answered, an update of data provided, etc.).

[0039] Further, a program code portion can be provided, allowing for access of web sites or web pages to an integrated image library, with the integrated image library preferably having a hierarchical organization allowing for the distinction of globally valid images from those that are to be used only within one site.

[0040]   This feature can be implemented by a link from said web page or web site to an image in said integrated image library, or by an actual copy of an image put into said web page or web site.

[0041]   Via the publishing function, images can be uploaded into the integrated image library database. Certain meta data for each uploaded image must be provided. These are: Name, Description, Keywords, and Type. The image type is chosen from a pre-defined list. Only images in certain formats are accepted. When an image is uploaded, the image is given a unique ID number. Further, the dimensions (the length and width of the image measured in pixels), the size, the mime-type (either GIF or JPG) are figured out. Also, the creator and/or last modifier of the image is stored together with the image. All images are associated with a specific site. This is the site that the publisher was in when the upload was performed. The publishing function that uploaded the image indicates if the image may be used on other web sites or not. If the publishing function qualifies the image as shared, it is available to all sites in the unified database. If the publishing function qualifies the image as private, it is only available on the site on which it was uploaded (it is however available to all the publishing functions on that site, and can be used on any page in that site). It cannot be used on other sites.

[0042]   The unified database can also provide access to set of global images, which

are images made available by the organization to all web sites of that

organization. Only through Platform Managing function, global images can

uploaded. Only the uploading function may effect changes to the meta data

of the image. In order to modify the image itself, an image editor must be

used. If such changes to an image do not affect the dimensions of the image

(e.g., the length and width remain the same), it may be resubmitted to the

database under the same name and ID number. If the changes affect the

dimensions of the image, then it must be uploaded anew into the database.

An image may only be deleted from the database when it is not being used on

any pages. Altering an image and resubmitting it under the same ID number

such that the image may be being used on various different pages, will affect

those pages as well. A list of all pages where the image is used is maintained

in the database.

[0043]   In a preferred embodiment, a program code portion may be provided

effecting automatic checks of links used in the document or web page

depending on the link type, and/or automatic content expiration of web pages

or web sites, and/or automatic detection of orphaned contents or sites, and/or

automatic detection of accounts of users trying to access web pages or web

sites the authorization of which has expired.

[0044]   Such an integrity checker is used to check the links on a page. This avoids

broken and non-functioning links.

[0045]   A daily check can be effected on all live, unfinished-live, and finished-live

pages that have been modified or created during the last calendar day.

[0046]   A complete check can be effected weekly on all live, unfinished-live, and

finished-live pages. This check can be run once a week in the night from

Saturday to Sunday.

[0047]   An interactive single page check can be effected at any time with the Check

Integrity command a publishing function can check the page currently being

worked on.

[0048]   The link checker looks at the following tags on the page: document tags - the

document types docweb, attachment, and URL are checked. Link tags - the

link types internal, wip, wip-info, bankweb, and bankweb-info are checked.

[0049]   There are four possible results of a check:

OK - the link, document or person reference could be checked successfully,

NOT CHECKED - the link, document or person reference could not be

checked, for instance because hardware or software infrastructure

required to carry out the check are down.

WARNING - the link functions, but there is an incorrect attribute somewhere

(for example, an internet link with a intranet URL).

ERROR - the link, document or person reference has a problem that must

be fixed by the publishing function; in this case, the link does not

function at all.

[0050]   Depending on its findings, the link checker sets an integrity flag of a page to

the following values: GOOD - no problematic link, document or person

reference found on the page; WARNING - one or more warnings found; and

CORRUPT - one or more errors, and maybe additional warnings, found.

[0051]   In a preferred embodiment, a program code portion may be provided

effecting an automatic scanning of migrated electronic dossiers for extracting

document related meta information (page ID, page title, edit (live link to

page), page type, URL, page description, keywords, language, last modified

by, last modified date, expiration date, created by, creation date, state), and

an automatic attaching of said extracted document related information to said

document for search and retrieval by users of said unified database.

[0052]   The invention is further concerned with a computer database product for a

unified network-based document management comprising at least one

electronic dossier originating from a document platform, each of said dossiers

being provided in a unified format together with at least a subset of style

characteristics of a predetermined set of styles to be correlated to the data of

said electronic dossier and one template of a predetermined set of templates

to be correlated to the data of said electronic dossier, for being accessible by

a user by means of a network component through a browser interface by

means of a browser installed on at the network component in order to

process, view and/or store said electronic dossiers.

[0053]   This aspect of the invention becomes important after the existing electronic

dossiers have been processed by a network-based document management

system as described above, and when new dossiers are to be created and

added to the then existing unified database platform.

[0054]   In such a computer database product for such a unified network-based

document management, each template of said predetermined set of

templates is comprised of at least three distinct areas accessible through a

graphical user interface: a top area comprising at least one pointer for a

global navigation path, and/or at least one pointer for a global topic; and/or at

least one pointer for a global function; a local navigation area comprising at

least one pointer for a local navigation path having a predetermined maximum

hierarchical navigation depth, and/or at least one pointer for a local page of a

web site, and/or at least one pointer for an page of an external web page,

and/or at least one micro-identity area; and a content area having a

predetermined layout according to said predetermined set of styles. This

allows for a consistent appearance of the web pages and the web sites in

accordance with said computer database product to the user facilitating the navigation and retrieval of the contents by the users.

[0055]   Also, in the computer database product according to the invention, the design rules utilized to create and format include the text font, the font size and colors on pages on blocks and properties like titles, subtitles, text etc., adjusts spacing between elements like text lines, between text and graphic elements, define colors for backgrounds, and exclude the utilization of animations, or the like. Each of said electronic dossiers in said unified database is organized as a part of a collection of hierarchically organized pages forming a site describing or representing a product, a service, a process or an organizational unit.

[0056]   The electronic dossiers use XML as the unified format, and the contents of said electronic dossiers is stored in the form of information blocks which are independent from the design or the layout of the contents. This allows for a wide variety of presentation media for the contents (intranet, internet, print, sound, etc.).

[0057]   The computer database product according to the invention is accessible by a platform manager function, a web manager function, a site manager function, a publisher function, site owner function, and an author function.

[0058]   The migration and/or the generation of the documents to be provided and

made accessible through the unified database can be a browser-based

content management application used and accessed by the publisher function,

the site administrator function, the site owner functions, and the administrator

functions. A main design principle is that no advanced IT or programming

skills are required. The basic unit of publishing is a paragraph, and not a

complete page as in conventionally available web publishing software

packages. Paragraphs are added to a page, are reordered, are modified,

and/or deleted. For every paragraph type, there is a dedicated editing

functionality that hides most of the underlying markup code. An XML DTD

(Document Type Definition) is defined for the page content which defines

exactly what kind of markup is allowed in which paragraph. Whenever a

paragraph is saved, its content is checked against the Document Type

Definition, and it is refused if it violates the DTD.

[0059]   There are multiple benefits of storing content in XML:

XML markup allows assigning special meaning to content. An example for

this is link handling and tagging in the database (people links,

document links etc). This is not possible in plain HTML.

A unified look and feel of all pages on the uniform document database

platform can be implemented down to paragraph level.

Since XML to HTML conversion is completely in the hand of the uniform

document database platform, it is possible to migrate content to new

versions of HTML and to new browsers without involving the

publishers.

Mobile intranet access via WAP can be implemented. This only requires

XML to WML conversion.

Conversion of intranet content to PDF, for instance, for proofreading

purposes.

[0060]   Most presentation issues are handled by the uniform document database

platform, allowing the publishing function to concentrate on content-related

issues.

[0061]   Text within a web page can have the following style effects:

Format	Semantic	Tag Effect
Important	...	Example: STRONG This serves to set words or phrases apart from each other visually. Currently, "strong" tagged elements are rendered bold.

Emphasis	...	Example:EMPHASIS This emphasizes words or phrases. Currently rendered in italics.
Line Break	 	Example: LINE Break As in HTML. Note however the backslash after the br. It is also possible to add type br without the backslash.
Subtitle	<subtitle>...</subtitle>	Example: <subtitle>SUBTITLE</subtitle> Used to add a subtitle into text. Subtitles are rendered on a new line with a blank line above and below.
Superscript	^{...}	Example: ^{SUPERSCRIPT} Used to make superscript text.
Subscript	_{...}	Example: _{SUBSCRIPT} Used to make subscript text.
Code	<code> ... </code>	Example: <code>CODE</code> Used to make a computer code-like, fixed font.
UBS Tiny	<style class="ubstiny">...</style>	Example: <style class="ubstiny">This is UBS tiny text.</style> Used to put text into a small typeface.

[0062]   The computer database product according to the invention may further

comprise a program code portion automatically effecting a language

management function that substitutes a web page not existing in a certain

requested language by an available language version of this web page

according to a predefined priority scheme.

[0063]   Further, the computer database product can comprise a program code portion

automatically effecting a receiving of feedback information about a web page

or a web site from a user, and a routing of said feedback information to a

database accessible by the responsible of such web page or a web site, and an entering of said feedback information into said database.

[0064]   Further, the computer database can comprise a program code portion providing access of web sites to an integrated image library, with the integrated image library having a hierarchical organization allowing for the distinction of globally valid images from those that are to be used only within one site.

[0065]   A program code portion effecting automatic checks of links depending on the link type, and/or automatic content expiration of web pages or web sites, and/or automatic detection of orphaned contents or sites, and/or automatic detection of accounts of users trying to access web pages or web sites the authorization of which has expired may be provided to increase the accuracy of the database contents.

[0066]   Further, the computer database product may comprise a program code portion effecting an automatic scanning of electronic dossiers for extracting document related meta information, and for automatic attaching of said extracted document related information to said document for search and retrieval by users of said unified database.

[0067]   The publishing function may only view (read) such meta information. It can be modified by the site managing function. The meta information describes

the site properties, controls basic site parameters and site-wide meta information, as listed below:

State	State of site.
Site ID	ID Number of site (system-generated).
Site name	Name of Site.
Site qualifier	Alias function (text-based URL for the site).
Site OU	Organization Unit of site.
Division	Division of site.
Site type	Type of site.
Global navigation	The site's position in the global navigation.
Search collection	Position of site in the intranet Search.
Validity period	Default page validity within the site.
Access level	Open or Closed. Closed sites are CUG sites.
Has workflow?	Indicates if the Workflow function has been activated for the site.
E-Mail user feedback to	Indicates to whom the email notification of feedbacks should be sent.
Has news?	Indicates if the site news function has been activated.
Show news navigation	Places a news archive link in the local navigation.
Is Staging public?	Allows the staging view to be freely seen on the intranet (i.e., by nonauthorized users). URL must be communicated.
Site style	Style of site.
Site DTD version	DTD Version of site.
Select contact page	Sets the site contact page.
Categories (IT only)	Special keyword list for IT sites.
Name	Language-specific name of site.
Keywords	Language-specific keywords of site.
Description	Language-specific description of site.

Micro-ID	Site Micro-ID.
Creator	Creator of site.
Modifier	Last modifier of site properties

[0068]   Finally, the present invention is also related to a computer database product

for a unified network-based document management as described above and

stored on a computer readable recording medium attached to or removable

from one or more of the network components.

[0069]   A computer program product according to the invention comprises at least

one of the program code portions and program code portions for causing one

or more network components to perform the functionalities discussed above.

BRIEF DESCRIPTION OF THE DRAWINGS

[0070]   Further details, embodiments, modifications or enhancements of the present

invention may be obtained from consideration of the following description of

various illustrative embodiments of the invention in conjunction with the

drawings in which:

[0071]   Fig. 1 is a schematic diagram illustrating the data processing in accordance

with an embodiment of the present invention;

[0072]   Fig. 2 is a schematic diagram illustrating a network component connected to

a group of network components in a computer network for a unified network-

based document management comprising a hosting unit for hosting for access

by the group of network components according to an embodiment of the

invention;

[0073]   Fig. 3 is a schematic diagram illustrating the three-layered unified network-

based document database system in accordance with an embodiment of the

present invention;

[0074]   Fig. 4 is a schematic diagram illustrating the structure of a web page of a

unified network-based document database management system in accordance

with an embodiment of the present invention;

[0075]   Fig. 5 are templates provided by the system that can be utilized in the unified

database, in accordance with an embodiment of the present invention;

[0076]   Fig. 6 is a schematic diagram illustrating the typical publishing cycle of a

document on a web page of a unified network-based document database

management system in accordance with an embodiment of the present

invention; and

[0077]   Figs. 7 to 62 are schematic depictions of exemplary GUIs of the invention

accessing a web site in the unified database.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0078]   In the following, the present invention will exemplarily be set forth with

respect to a web-based solution erected on a network topology that supports

the implementation of a secure and reliable access control mechanism.

Although the present invention is particularly suited for handling the data

described herein, the network topology and access control mechanisms

according to the invention can be implemented regardless of the nature of the

data that are hosted, stored, processed, etc.

[0079]   Figs. 1 and 2 show the software and the hardware infrastructure of an

embodiment of the invention utilizing a network component 10 that is a

computer workstation having a graphical display unit 12 and a graphical input

unit 14, e.g., a mouse. This computer workstation 10 is connected to a

computer network 16 (a wide area network (WAN), a local area network

(LAN) or a combination thereof, for operating an intranet and for providing

access to the Internet to which a number of members of a group of similar or

identical network components 10' are also connected. In order to operate the

unified network-based document management system according to the

invention a hosting unit 20 that is a host server having an archival data stora-

ge is also connected to this computer network 16 for access by the group of

network components 10, 10'. In addition to its server tasks, the hosting unit

20 also provides firewall functions, authenticates the distributed client

components connected to the computer network 16.

[0080]   On the computer workstation 10, a client software application is resident that

includes a first program code portion for generating a graphical user interface

GUI. The graphical user interface GUI has several control elements, that are so-called buttons (i.e., confined areas) on the display that can be operated by a mouse pointer 22 that follows the movements carried out by the graphical input unit 14.

[0081] The client software application provides a first control element, i.e., an above-described button A, on the display for activating a program code portion for electronically initiating a transformation of an electronic dossier originating from one of a number of document platforms, said electronic dossier being provided in a first format and being made available to a number of users of a web site.

[0082] The client software application further includes a program code portion for providing a second control element B, i.e., an above-described button, on the display for electronically obtaining from a predetermined set of templates one template to be correlated to the data of said electronic dossier. The predetermined set of templates (see Fig. 5) is defined in template rules 30 and is stored in a memory accessible by the users in the computer network. Likewise, this program code portion of the client software application program includes a code portion for electronically obtaining from a predetermined set of styles at least a subset of style characteristics to be correlated to the data of said electronic dossier. Similarly, the predetermined set of styles is defined

in style rules 32 and is stored in a memory accessible by the users in the

computer network. The details thereof are explained hereinafter.

[0083]   The client software application further includes a program code portion 40 for

providing a third control element C, i.e., an above-described button, on the

display for initiating an electronically executed migration of the electronic

dossier to a document platform having a unified format, and for electronically

exporting said electronic dossier together with said suited template and said

style subset to a unified database 50. The document platforms from which

said electronic dossiers may be and usually are diverse.

[0084]   Especially in organizations with several business units, divisions, committees

etc., the computer network is accessed and used by a number of groups

maintaining different sets of document platforms. This is reflected in Fig. 1 by

referring to Groups A and B each being in possession of their own electronic

dossiers that may be HTML pages, database contents plus templates, static

web pages, documents comprising alphanumeric and/ or image data, links to

other web sites, XML documents, or the like (see Fig. 1).

[0085]   The unified database 50 is adapted to store the migrated electronic dossiers

together with the obtained template and the obtained style subset. In one

embodiment of the present invention, the migrated electronic dossiers use

XML as the unified format. The contents are stored in the form of information

blocks that are independent from the design or the layout of the contents.

[0086]   Instead of storing the obtained template and the obtained style subset

together with each of the migrated electronic dossiers, it is also possible to

only store a pointer to the storage location of the obtained template and the

obtained style subset together with each of the migrated electronic dossiers.

In any case, the migrated electronic dossiers are accessible by a user by

means of one of the network components through a browser interface by

means of a browser installed on his/her network component in order to

process, view and/or store the migrated electronic dossiers.

[0087]   As shown in Fig. 3, the unified information platform implemented and

achieved by the document database is divided into three distinct layers with

defined interfaces and structures: aggregation layer, access layer and content

layer.

[0088]   In the layer model, sites of the unified information platform are located in the

content layer. Every page of a site of the unified information platform

displays a global navigation that reflects its site type. This navigation can be

either flat or hierarchical. As mentioned above, the electronic dossiers

provided in the unified database are organized as a part of a collection of

hierarchically organized pages forming a site describing a product, a service, a

process, or an organizational unit. The site navigation reflects the

organization/function/presentation of the product, the service, the process, or

the organizational unit. This is also exemplified by pages of a site called

"Regulations & Committees in UBS AG" (see Figs. 7-62)

[0089]   Available site types are:

Organization site:	the home page of an organization, also called OU (organizational unit) site.
Service site:	a site describing a service or product.
Project site:	a site describing a larger project.

[0090]   OU sites have the hierarchical global navigation. Service sites should not

feature an OU navigation since they are not necessarily related to a single

organization. A meaningful global navigation here would be the set of related

services. Projects can be classified and organized into subprojects, making it

possible to display a hierarchical project navigation.

[0091]   Sites of the unified information platform can reference each other with normal

links within the page content.

[0092]   In the layer model, inter-site navigation and search is provided in the access

layer. This layer contains an extensible set of tools that allow a user to find

and access sites or individual pages within these sites. A site browser

combines site search and inter-site navigation functionality and can be

accessed from every page. This corresponds in principle to a navigation

window. The set of tools provided in the access layer is extensible.

[0093] The access layer facilitates the access of information on an intranet, but it

does not process or bundle this information. A further step is to build a

personalized view of the site of the unified information platform, which brings

information from pages belonging to different sites together. This

functionality is provided by the aggregation layer, which contains

personalization and portal/knowledge management functionality.

[0094] The system provides a number of templates that can be utilized in the unified

database (see Fig. 5). Before creating a page, the following items must be

defined:

Page title	For the title of the page. This is the name by which the unified database refers to the page in all searches.
Description for search	This is **meta-information**. When a search is done in the **engines** database and this page is found, this text will be shown. This field is **required**.
Keywords	Here keywords for the page can be entered
Language	A language for the page is chosen.
Page type	The page type is chosen. The choices are **Standard**, for normal pages, and

News, for pages that are meant to be news articles.

Banners   This field controls wether the page layout should include a banner (a banner is a Title Block with a default banner graphic in it).

Layout 1-14   One of the 14 standard layouts is chosen as a starting point for the page.

Contact page   If a **Contact Page** is created, this layout instead of one of the standard layouts is chosen.

[0095]   Each template of said predetermined set of templates is comprised of at least three distinct areas (see Fig. 4). By using one of the predefined templates of the predetermined set of templates, each of the pages is in line with the template rules. The pages have three distinct areas accessible through said GUI: a top area comprising at least one pointer for a global navigation path, and/or at least one pointer for a global topic; and/or at least one pointer for a global function; a local navigation area comprising at least one pointer for a local navigation path having a predetermined maximum hierarchical navigation depth, and/or at least one pointer for a local page of the web site, and/or at least one pointer for an page of an external web page, and/or at least one micro-identity area; and a content area having a predetermined

layout according to said predetermined set of styles. This allows for a

consistent appearance of the data to the user "look and feel" facilitating the

navigation and retrieval of the contents by the users.

[0096]   The style rules utilized to create and format the content include the text font,

the font size and colors on pages on blocks and properties like titles, subtitles,

text etc., adjusts spacing between elements like text lines, between text and

graphic elements, define colors for backgrounds, and exclude the utilization of

animations or the like.

[0097]   A main design principle is that the basic unit of publishing is a paragraph. For

every paragraph type, there is a dedicated editing functionality that hides

most of the underlying markup code. An XML DTD (Document Type

Definition) is defined for the page content which defines exactly what kind of

markup is allowed in which paragraph. As an example, only the following XML

tags are admitted and used:

Tag	Description
. . .	Bold
<i>. . .</i>	Italic
<style id=". . . ">. . .</style>	Applying a style (color, font, etc) to a predefined list of styles.
 	Line break
<p>	Paragraph
<space>	White space of a certain width.
<link type=". . .">. . .</link>	A link to a page.
<person . . .>. . .</person>	A person.

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<email > </email>          An email address
<mobile . . .>. . .</mobile>   A handheld number.
<product . . .>~. .</product>  A product (account type, credit
                                  card, etc.)
<doc ref=". . .">. . .</doc>   A document
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[0098]   The entirety of electronic dossiers forming a page, the entirety of pages

forming a site, and the entireties of sites forming a platform are operated with

clear interfaces, competences, and rules. To this end, several functions 52

having predetermined authorities, tasks and capabilities are provided (see Fig.

1):

- a platform manager function
- a web manager function
- a site manager function
- a publisher function
- site owner function, and
- an author function.

[0099]   The platform manager function includes technical programming and

development of the unified platform.

[00100]   The web manager function includes publishing responsibilities for an entire

business unit, including creation of web sites, definition of users, authorization

of site managing functions and of publishing functions, accessing web sites

with predefined restrictions in their business area, and providing information,

data and support for publishing activities.

[00101]   The site manager function includes allowing access to publishing functions of

predefined sites, definition of local navigation, and ascertaining the

compliance with said predetermined set of templates and/or said

predetermined set of styles.

[00102]   The publisher function includes the creation and formatting of pages of a web

site, creation and insertion of local navigation pointers into pages of a web

site, insertion of graphics on web pages, adding text on web pages, effecting

changes and updates, defining and verifying links to pages, and publishing

and de-activating pages.

[00103]   The site owner function includes the responsibilities for the contents of the

web site, effecting administrative duties including the definition of guidelines

for the provision of a web page in certain languages, the publication format,

and the period of validity of certain pages of a web site.

[00104]   The author function includes the creation and/or provision of text and

graphics, and provision of translations.

[00105]   Fig. 6 shows a typical publishing cycle of a document on a web page of a

unified network-based document database management system. The first

status of a document on a web page is Unfinished. This is the status of a

page or navigation that is new, and has never once been set live (or has been

deactivated and restored). The second status of a document on a web page

is Live. This is the status of a page or navigation that has been published.

These pages and navigations are visible on the live site. The third status of a

document on a web page is Unfinished-Live. This is the status of a page or

navigation that has been edited. The live site continues to show the last Live

version. The page or navigation is set Live again to 'publish' the changes.

The status of a page or navigation that is under development and is tested

usually changes between Unfinished-Live and Live. The fourth status of a

document on a web page is Deactivated. This is the status of a page or

navigation that has been deactivated. Once deactivated, it may be restored

(set to Unfinished again) or permanently deleted.

[00106]   Figs. 7-62 show how the design principles explained above are put into

practice in an actual web site.

[00107]   - The UBS Logo is presented in the top left corner.

[00108]   - The top area comprises several pointers for a global navigation path: *Group

> Corporate Center > Group Legal Services. Group Legal Services* offers

several topics: *Corporate Governance / Regulatory Matters ; Litigation /*

Contracts / Internet / Intranet ; Intellectual Property Services. Further,

pointers for global functions *Search Navigator Tools Print Email* are

provided. Finally, the chosen language *eng* of the web site is indicated.

[00109] - The local navigation area comprises the local navigation pointers if they are

available. The local navigation has an entry called TOP. This is the root

navigation of the site. TOP is always linked to the welcome page of a site.

Further, the local navigation area has two micro-identity areas representing

Corporate Center and Group Legal Services.

[00110] - The content area has a predetermined layout and refers to "Regulations and

Committees in UBS AG."

[00111] The design of the navigation is standardized. The colors, fonts, and spacing

are all controlled by the system.

[00112] The navigations are hierarchical. There is a vertical and a horizontal

hierarchy. Vertically, the Top navigation is always the first entry.

[00113] Linking to a wide variety of documents (PDF; WinWord, Excel, PowerPoint,

Visio, etc.) is available by pointing with the mouse pointer to the *Quick Links*

provided below the right hand image of Fig. 7. The *Quick Links* are POP-UP

items pointing to *Structure of UBS AG, Regulations, Board & Committees.*

Their appearance is shown in Fig. 8 (*Structure of UBS AG*), Figs. 9-10 (*Boards*

& Committees), and Figs. 11-12 (*Regulations*). Fig. 10 is a continuation of the

exemplary web page shown in Fig. 9. Fig. 12 is a continuation of the

exemplary web page shown in Fig. 11. When the user follows a document

link in the web pages of Figs. 8-12, the document (e.g., a PDF) will open.

The document must be either available via an intranet or reside on a web-

server which is available to the unified database (i.e., it must have a URL).

Clicking with the mouse pointer on *Structure of UBS AG* will make Fig. 8 pop

up. This presents the Structure of UBS AG having a *Board of Directors, a*

Group Executive Board and five Business Units: *UBS WM & BB, UBS Warburg,*

UBS Global AM, UBS PaineWebber, and *Corporate Center.* The structure of

UBS AG is reflected and presented by the structure of the web site as can be

seen from the further pages shown in the following Figs. 13-62. It can be

followed and contemplated by working through the hierarchical web pages

following the links and popup menus revealing links, documents, and

information about UBS AG.

[00114] The above-described embodiments of the invention are intended to be

examples of the present invention and alterations and modifications may be

effected thereto, by those of ordinary skill in the art, without departing from

the scope of the invention which is defined thoroughly by the claims

appended hereto.

[00115] Further, in describing representative embodiments of the present invention,

the specification may have presented the method and/or process of the

present invention as a particular sequence of steps. However, to the extent

that the method or process does not rely on the particular order of steps set

forth herein, the method or process should not be limited to the particular

sequence of steps described. As one of ordinary skill in the art would

appreciate, other sequences of steps may be possible. Therefore, the

particular order of the steps set forth in the specification should not be

construed as limitations on the claims. In addition, the claims directed to the

method and/or process of the present invention should not be limited to the

performance of their steps in the order written, and one skilled in the art can

readily appreciate that the sequences may be varied and still remain within

the spirit and scope of the present invention.